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CERTIFICATE OF MAILING  
I HEREBY CERTIFY THAT THIS PAPER AND THE DOCUMENTS REFERRED AS BEING ATTACHED OR ENCLOSED  
HEREWITH ARE BEING DEPOSITED WITH THE UNITED STATES POSTAL OFFICE ON FEBRUARY 28, 2002  
AS FIRST CLASS MAIL IN AN ENVELOPE ADDRESSED TO: ASSISTANT COMMISSIONER FOR PATENTS,  
WASHINGTON, D.C. 20231

ALLEGRA HELFENSTEIN, REG. NO. 34,179

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PATENT

MAR 2 8 2002

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Diwu, et al

Serial No.: 09/922,333

Filing Date: 08/04/01

Date: February 28, 2002

COPY OF PAPERS  
ORIGINALLY FILED

For: **DERIVATIVES OF 1,2-DIHYDRO-7-HYDROXYQUINOLINES CONTAINING FUSED RINGS**

**Supplemental Information Disclosure Statement**

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TC 1700

Commissioner for Patents  
United States Patent and Trademark Office  
Washington, D.C. 20231

Dear Sir:

In accordance with their duty of disclosure under 37 CFR §§ 1.97 and 1.56, Applicants hereby disclose the following references.

**U.S. PATENTS**

U.S. Patent 4, 544,546 to Wang, et al. (1985)

U.S. Patent 5,290,706 to Camiener (1994)

U.S. Patent 6,140,500 to Yan, et al. (2000)

**REFERENCES**

Kano, et al. HETEROCYCLES 15 (2), 1011 (1981)

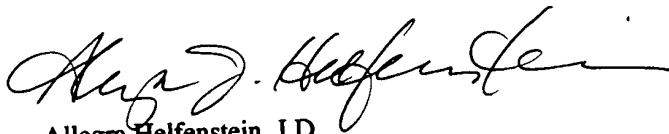
Temciuc, et al. TETRAHEDRON 51 (48), 13185 (1995)

Applicants received an International Search Report in international application number PCT/US01/24479 that was mailed December 31, 2001. The search report cites the references listed above.

A copy of the Search Report is enclosed herein.

For the convenience of the Examiner, the references are listed on modified PTO Form 1449  
(attached) and copies thereof are enclosed.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Allegra J. Helfenstein".

Allegra Helfenstein, J.D.

Registration No. 34,179

Patent Counsel

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# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 2081.OPCT	<b>FOR FURTHER ACTION</b>	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US01/24479	International filing date ( <i>day/month/year</i> ) 04 August 2001 (04.08.2001)	(Earliest) Priority Date ( <i>day/month/year</i> ) 04 August 2000 (04.08.2000)
Applicant MOLECULAR PROBES, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the Report**

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☒ **Unity of invention is lacking** (See Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. \_\_\_\_\_

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/24479

## Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claim Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claim Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:  
Please See Continuation Sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐  
☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/24479

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C07D 221/12, 487/04, 491/04, 491/22, 495/04; G01N 33/48  
US CL : 546/36, 62, 70, 80, 89; 544/99; 436/92, 174

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 546/36, 62, 70, 80, 89; 544/99; 436/92, 174

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
CAS ONLINE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KANO et al. Formation of furo[3,2-c]quinoline derivatives through the Fries-type acid catalyzed rearrangement of 1-arylazetidin-2-ones. Heterocycles. 1981, Vol. 15, No. 2, pages 1011-1015, especially see page 1014, formula 20a and 20b.	1-3, 7-10
X	TEMCIUC et al. An Unexpected [2+2]-Cycloaddition Reaction of 4-Methyldithieno-[3,4-b:3'2'-d]pyridinium Iodide with Dimethyl Acetylenedicarboxylate. Tetrahedron. 1995, Vol. 51, No. 48, pages 13185-13196, especially page 13186, formula 4.	1-2, 4-5, 8-10
A, P	US 6,140,500 A (YAN et al) 31 October 2000 (31.10.2000), see entire document.	11-37
A	US 5,290,706 A (CAMIENER) 01 March 1994 (01.03.1994), see entire document.	29-37
A	US 4,544,546 A (WANG et al) 01 October 1985 (01.10.1985), see entire document.	29-37

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

21 September 2001 (21.09.2001)

Date of mailing of the international search report

31 DEC 2001

Name and mailing address of the ISA/US

Commissioner of Patents and Trademarks  
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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/24479

### BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-10, drawn to tricyclic heterocyclic compounds.

Group II, claim(s) 11-37, drawn to heptacyclic heterocyclic compounds and the method of use thereof.

The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Groups I-II relate to structurally dissimilar compounds that lack a common core namely a tricyclic heterocycle vs. a heptacyclic heterocycle which are not art recognized equivalents of each other. The compounds of Groups I-II do not contain the same essential structural element and the structural element that is common to both the groups does not constitute a structurally distinctive portion in view of prior art.